Scientists have found a way to create mutant organisms more reliably, using a recently developed gene-editing technique known as CRISPR. Scientists have found a way to create mutant organisms more reliably, using a recently developed gene-editing technique known as CRISPR.

CRISPR (short for “clustered regularly interspaced short palindromic repeats”) is a technology that research scientists use to selectively modify the DNA of living organisms. CRISPR was adapted for use in the laboratory from naturally occurring genome editing systems found in bacteria.

CRISPR genome editing allows scientists to quickly create cell and animal models, which researchers can use to accelerate research into diseases such as cancer.

Scientists have found a way to create mutant organisms more reliably, using a recently developed gene-editing technique known as CRISPR. And just as in the "X-Men" movies, not everyone is happy about that.

The procedure, known as mutagenic chain reaction, is described in a paper published online Thursday by the journal Science. It uses genetic engineering to put a specific mutation in both copies of a gene associated with a particular trait. That gets around a cellular mechanism that usually keeps recessive mutations from being expressed.

Here's the classic, if overly simplistic, example: Children inherit sets of chromosomes from each of their parents, with each chromosome containing the genes for various traits. A blue-eyed child has to inherit the blue-eyed gene from both the mother and the father. Otherwise, the dominant brown-eyed gene trumps the recessive blue-eyed gene.

In reality, eye color is determined by more than one gene. But the same principle applies to genetic defects such as muscular dystrophy: Even if you inherit the mutated gene for muscular dystrophy from one parent, the normal gene from the other parent can compensate and keep you from getting the disease.

UCSD Professor Ethan Bier, the paper's co-author, said the technique has "several profound consequences." It could accelerate the pace of genetic research, and facilitate the rapid dispersal of genetically engineered traits.

For example, researchers already have worked out genetic codes to prevent mosquitoes from spreading malaria and other diseases, but it's not easy to breed mosquitoes to incorporate those codes. With MCR, the codes could spread to virtually all the individuals in a mosquito population in as few as 10 generations.

Less than one season for mosquitoes Bier said.

Gantz said the same technique could be used to spread genes among cells within an individual using modified viruses, or even hunt down and fix HIV-infected cells or cancer cells.

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